

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A process ~~for producing silane crosslinked (cured) polyethylene in which~~ comprising grafting a polyethylene is ~~grafted~~ with a silane comprising at least one ethylenic double bond to form a silane crosslinkable polyethylene which is then optionally subjected to a crosslinking to provide a silane crosslinked polyethylene (curing) ~~step, characterized in that~~ wherein the process further comprises the following ~~process steps~~:

- a) a sample is taken from the silane crosslinkable polyethylene before crosslinking ~~the curing step~~;
- b) the sample is processed into a film;
- c) the film is analyzed by Infrared Spectroscopy;
- d) a predefined area of the IR spectrum is determined; and
- e) the area determined in ~~step d)~~ is correlated with ~~the~~ an expected gel content in the silane crosslinked polyethylene ~~after the curing step~~ using a predetermined regression curve, wherein the predefined area of the IR spectrum is the area starting at a wave number in the range from 1150 cm⁻¹ to 1205 cm⁻¹ and ending at a wave number in the range from 1020 cm⁻¹ to 1085 cm⁻¹.

Claim 2 (Previously Presented): The process according to claim 1, wherein the polyethylene is a polyethylene homopolymer or a copolymer of ethylene and at least one other olefin.

Claim 3 (Previously Presented): The process according to claim 2, wherein the other olefin is selected from propylene, butene, octene, vinyl acetate, (meth)acrylate and mixtures thereof.

Claim 4 (Previously Presented): The process according to claim 1, wherein the silane comprising at least one ethylenic double bond is a vinyl silane.

Claim 5 (Previously Presented): The process according to claim 4, wherein the silane is selected from vinyltrimethoxysilane, vinyltriethoxysilane, vinylmethyldimethoxysilane and vinylmethyldiethoxysilane.

Claim 6 (Currently Amended): The process according to claim 1, wherein the predefined area of the IR spectrum is the area starting at a wave number in the range from ~~1150~~ 1185 cm^{-1} to 1205 cm^{-1} and ending at a wave number in the range from ~~1000~~ 1020 cm^{-1} to 1085 cm^{-1} .

Claim 7 (Previously Presented): The process according to claim 1, wherein the grafting of the polyethylene with a silane comprising at least one ethylenic double bond to a silane crosslinkable polyethylene is carried out in the presence of a free radical source.

Claim 8 (Previously Presented): The process according to claim 7, wherein the free radical source is a peroxide, a diazo compound or radical generating irradiation.

Claim 9 (Currently Amended): The process according to claim 1, comprising subjecting the silane crosslinkable polyethylene to crosslinking to provide a silane crosslinked polyethylene, wherein the silane crosslinked (~~cured~~) polyethylene is at least a part of a shaped product.

Claim 10 (Currently Amended): The process according to claim 9, wherein ~~in a first step~~ the polyethylene is reacted with a free radical source and the silane to obtain granules of silane crosslinkable polyethylene and ~~in a second step~~ then the granules of silane crosslinkable polyethylene are optionally mixed with a catalyst and formed into the shaped product which is then cured by applying heat and water.

Claim 11 (Currently Amended): The process according to claim 10, wherein the sample ~~in step a)~~ is taken from the granules of silane crosslinkable polyethylene.

Claim 12 (Currently Amended): The process according to claim 7, wherein the regression curve ~~used in step e)~~ is obtained according to the following protocol:

A) samples of silane crosslinkable polyethylene are produced from polyethylene containing a standard concentration of free radical source and varying concentrations of silane;

B) samples of silane crosslinkable polyethylene are produced from polyethylene containing a standard concentration of the silane and varying concentrations of free radical source;

C) optionally samples of silane crosslinkable polyethylene are produced from polyethylene containing varying concentrations of free radical source and varying concentrations of silane;

D) each of the samples produced in A), B) and optionally C) above are cured, and the gel content of cured product is measured;

E) of each of the samples produced in A), B) and optionally C) above films of controlled thickness are obtained and subjected to IR spectroscopy;

F) from each of the spectra obtained in ~~step~~ E) above the spectrum of a sample which was produced without silane is subtracted, and the resulting spectra are normalized;

G) a predefined area of each of the normalized spectra is determined; and

H) the areas of ~~step~~ G) are correlated with the gel content of the corresponding cured products obtained in ~~step~~ D) and the regression curve is calculated based on these data.

Claim 13 (Currently Amended): The process according to claim 12, wherein in ~~step~~ A) one sample with a silane concentration of 0% and five or more samples with varying silane concentrations are produced.

Claim 14 (Currently Amended): The process according to claim 12, wherein in ~~step~~ B) five or more samples with varying concentrations of free radical source are produced.

Claim 15 (Currently Amended): The process according to claim 12, wherein ~~step~~ C) is carried out and five or more samples with varying concentrations of silane and free radical source are produced.

Claim 16 (Currently Amended): A method for ~~controlling~~ testing the ability quality of ~~shaped products of silane crosslinked polyethylene in a process in which polyethylene is reacted with peroxide and a vinylsilane at a high temperature to~~ a silane crosslinkable polyethylene to produce a silane crosslinked polyethylene which comprises the following ~~protocol~~:

- a) a sample is taken from the silane crosslinkable polyethylene,
- b) the sample is processed into a film;
- c) the film is analyzed by Infrared Spectroscopy;

d) a predefined area of the IR spectrum is determined; and

e) the area determined in step d) is correlated with the expected gel content of a shaped product of the silane crosslinked polyethylene using a predetermined regression curve,

wherein the predefined area of the IR spectrum is the area starting at a wave number in the range from 1150 cm⁻¹ to 1205 cm⁻¹ and ending at a wave number in the range from 1020 cm⁻¹ to 1085 cm⁻¹.

Claim 17 (New): The process according to claim 1, wherein the silane crosslinkable polyethylene is not subjected to crosslinking to provide a silane crosslinked polyethylene.

Claim 18 (New): The process according to claim 17, wherein after the area determined in d) is correlated with a gel content using the predetermined regression curve the silane crosslinkable polyethylene is recycled.

Claim 19 (New): The process according to claim 16, wherein the predefined area of the IR spectrum is the area starting at a wave number in the range from 1185 cm⁻¹ to 1205 cm⁻¹ and ending at a wave number in the range from 1020 cm⁻¹ to 1085 cm⁻¹.